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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER
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LI, SHI K

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.



## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Le et al. (U.S. Patent 7,054,559 B1) in view of Kosaka et al. (U.S. Patent 6,195,480 B1) and Yano (U.S. Patent 6,108,125).

Regarding claim 1, Le et al. discloses in FIG. 1 a WDM fiber optic transmission system. FIG. 1 comprises WDM multiplexer 102 for generating signal from site A to site B, WDM demultiplexer 122 for receiving optical signal from site A, optical fiber 110 and optical line amplifier sites 105 and 115. Le et al. teaches in FIG. 2 to divide wavelength channels into red, blue, green and yellow bands and process each band with optical line amplifier 210-240. Le et al. teaches in col. 6, lines 33-35 that each optical line amplifier can include any type of optical amplifier, regenerator, or repeater. In particular, Le et al. teaches in FIG. 3 an example where the line amplifier includes a dispersion compensation module (DCM) for compensating distortion caused by dispersion. The differences between Le et al. and the claimed invention are (a) Le et al. does not teach an optical transmitter in site A and a receiver in site B; (b) Le et al. does not teach retiming. Even though transmitters and receivers are commonly included in WDM optical transmission systems as understood for one of ordinary skill in the art, the Examiner strengthen the argument by citing Kosaka et al. for teaching transmitting unit and receiving unit in a WDM transmission system. In particular, Kosaka et al. teaches in FIG. 1 transmitting unit 2 coupled to WDM multiplexer 12<sub>1</sub> and receiving unit 22 coupled to WDM

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demultiplexer 12<sub>2</sub>. One of ordinary skill in the art would have been motivated to combine the teaching of Kosaka et al. with the WDM fiber optic transmission system of Le et al. because a transmitting unit generates optical signal that carries user information for delivery to a distance location and, therefore, realizes user-to-user communication over long distance. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include transmitting unit for generating optical signal carrying user information and receiving unit for recovering user information from optical signal, as taught by Kosaka et al., in the WDM fiber optic transmission system of Le et al.

The modified WDM fiber optic transmission system includes a transmitter in site A, a receiver in site B, a optical fiber connecting the transmitter to receiver with two or more channel regenerators, e.g., 105 and 115 of FIG. 1 of Le et al. The regenerator for red wavelength band 210 in 105 and the regenerator for green wavelength band 230 in 115 form a set of regenerators. Each of them regenerates a non-overlapping subset of channels. Channel regenerators 105 and 115 are positioned at a predetermined distance from each other and the red and green wavelength bands are from transmitter to receiver in a left-to-right direction.

The combination of Le et al. and Kosaka et al. still fails to teach retiming. However, Le et al. teaches in col. 6, lines 33-35 that each optical line amplifier can include any type of optical amplifier, regenerator or repeater. Thus, one of ordinary skill in the art would have been motivated to include a regenerator in the optical line amplifier site as suggested by Le et al. For example, Yano teaches in col. 1, lines 22-35 that the function of a regeneration repeater includes reshaping, retiming and amplification. Yano teaches in FIG. 6 and FIG. 7 an optical regenerative repeater. One of ordinary skill in the art would have been motivated to combine the teaching of

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Yano with the modified WDM fiber optic transmission system of Le et al. and Kosaka et al based on the suggestion of Le et al. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a regenerative repeater with reshaping, retiming and amplification functions, as taught by Yano, in the modified WDM fiber optic transmission system of Le et al. and Kosaka et al based on the suggestion of Le et al.

***Allowable Subject Matter***

3. Claims 1 and 3-23 are allowed.

***Response to Arguments***

4. Applicant's arguments with respect to claim 2 have been considered but they are not persuasive.

The Applicant argues that claim 2 is patentable at least by virtue of its dependency on claim 1. The Examiner disagrees. Claim 2 is in independent form. Nowhere does claim 2 refer claim 1. Therefore, the Applicant's argument is moot.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

skl  
10 March 2007



**Shi K. Li**  
**Primary Patent Examiner**